What is claimed is:

1. A method, comprising:

providing a therapeutic device including an array of several elements carried on a flexible circuit substrate, the elements each producing acoustic energy when activated;

positioning the therapeutic device within a patient's body; and

ablating tissue by activating one or more of the elements while the device is within the patient's body.

2. The method of claim 1, wherein the elements number at least 8 and are each fixed in relation to one another and a circumference of the device.

3. The method of claim 2, wherein the elements number at least 16, the elements are each elongate, the elements are each spaced about a longitudinal axis of the array, and the elements each have a maximum acoustic power level of at least one watt.

4. The method of claim 3, wherein the elements number about 64 and the circumference of the device defines a generally cylindrical shape having a central axis approximately coincident with the longitudinal axis.

5. The method of claim 1, wherein the acoustic energy generated by the elements includes ultrasound, and said ablating includes activating a subset of the elements to focus ultrasonic energy on a selected tissue region.

6. The method of claim 1, wherein the acoustic energy produced by the elements includes ultrasound and said ablating includes activating different groups of the elements in a desired sequence to sweep focused ultrasound energy along a desired tissue path.

7. The method of claim 6, wherein the therapeutic device includes a flexible cabling, the flexible cabling being coupled to the flexible circuit substrate at a distal end portion of the device, the flexible cabling being coupled to a connector at a proximal end portion of the device, and said positioning includes percutaneously placing the array in a pulmonary vein of the patient's body by catheterization.

8. The method of claim 7, wherein the cabling includes a number of electrical conductors each electrically insulated from one another and each electrically connected to a different one of the elements to independently activate each of the elements and which includes:

coupling the connector to an operator station outside the patient's body; and

controlling said ablating with the operator station.

9. A method comprising:

providing a therapeutic device including eight or more ultrasonic ablation elements fixed in relation to one another;

positioning the therapeutic device within a patient's body; and

activating different groups of the elements while the device is in the patient's body to correspondingly provide ultrasonic energy focused to ablate different tissue regions, the different tissue regions corresponding to different segments circumferentially surrounding the device.

10. The method of claim 9, wherein said activating includes energizing the elements in a designated sequence to advance focused ultrasonic energy about a perimeter of the device.

11. The method of claim 10, wherein the perimeter generally corresponds to a circle and the different groups of elements each correspond to an arc segment of the perimeter.

12. The method of claim 9, which includes adjusting electrical energy provided to one of the different groups of the elements to change distance at which focused ultrasonic energy emanates from the device.

13. The method of claim of 9, wherein the elements each have a maximum ultrasonic power level of at least two watts.

14. The method of claim 9, wherein the elements number at least 16, the elements are each elongate and are each spaced approximately equidistant from a longitudinal centerline axis of the array, and a quantity of the elements in each of the different groups numbers more than two.

15. The method of claim 6, wherein the device is coupled to an operator station outside the patient's body, and further comprising:

locating the array in a pulmonary vein region of the patient's body; and

controlling said activating with the operator station to sweep focused ultrasonic energy along a designated path relative to the pulmonary vein region.

16. A tissue ablation apparatus, comprising: an elongate, flexible device operable to be percutaneously placed in a circulatory system of a patient, the device having a proximal end portion and a distal end portion and including:

an array of eight or more tissue ablation elements carried on a flexible circuit substrate, the array being located at the distal end portion;

cabling including a number of electrical conductors each electrically insulated from one another, the elements each being electrically coupled to a different one of the electrical conductors; and

one or more connectors located at the proximal end portion, the one or more connectors being electrically coupled to the cabling.

17. The apparatus of claim 16, further comprising an operator station coupled to the connector, the operator station including one or more processors operable to control activation of the elements.

18. The apparatus of claim 16, wherein the operator station further includes instructions to activate the elements in a selected sequence to direct focused ultrasonic energy along a desired tissue pathway.

19. The apparatus of claim 16, wherein the flexible circuit substrate is formed in an approximately cylindrical shape with the elements positioned generally equidistant from a central longitudinal axis of the array.

20. The apparatus of claim 16, wherein the elements number at least 32, the elements are each generally sized and shaped alike, and the elements are each comprised of a piezoelectric material.

21. The apparatus of claim 20, wherein the elements number at least 64.

22. The apparatus of claim 16, wherein the cabling includes a number of multiple conductor cables connected to the flexible circuit substrate by solder.

23. A system, comprising:

an ablation device operable to be percutaneously placed within a patient's body, the ablation device including a proximal end portion, a distal end portion, and an array of ultrasonic ablation elements carried on a flexible substrate located at the distal end portion; and

a control station coupled to the proximal end portion of the ablation device, the station including one or more processors operable to activate one or more elements of the array to selectively ablate tissue while the array is positioned within the patient's body.

24. The system of claim 23, wherein the one or more processors include operating logic to activate different groups of the elements in a selected sequence to correspondingly ablate different tissue regions.

25. The system of claim 23, wherein:

the array is generally formed in the shape of a cylinder with the elements being positioned approximately equidistant from a central longitudinal axis of the cylinder;

the control station includes one or more operator input devices; and

the control station is responsive to the one or more operator input devices to adjust focused ultrasonic energy provided by the array in relation to at least one of distance from the axis and angular position with respect to the axis.

26. The system of claim 23, wherein the elements number at least 32, the elements are each generally sized and shaped alike, and the elements are each comprised of a piezoelectric material.

27. The system of claim 26, wherein the elements number at least 64.

28. The system of claim 23, wherein the ablation device includes cabling with a number of electrical conductors electrically insulated from one another, the elements each being electrically connected to a different one of the conductors to receive independent activation signals from the control station.

29. The system of claim 23, wherein the station includes one or more operator input devices, a display, and analog circuitry operable to independently drive each of the elements in response to one or more signals from the one or more processors.

30. The system of claim 29, wherein the one or more processors are operable to provide a graphical output on the display corresponding to operating status of the ablation device.

31. A method, comprising:

providing an assembly including a rigid piezoelectric member mounted to a circuit substrate;

dividing the piezoelectric member into a number of pieces while included in the assembly to provide an array of at least 24 piezoelectric elements;

coupling the circuit substrate to cabling, the cabling including a number of electrical conductors each electrically insulated from one another, the elements each being electrically connected to a different one of the conductors by said coupling.

32. The method of claim 31, which includes:

masking the assembly to expose a surface of the piezoelectric member and a pad of the flexible circuit substrate; and

depositing an electrically conductive material after said masking to electrically couple the exposed surface of the piezoelectric member and the pad before said dividing.

33. The method of claim 32, which includes:

attaching an electrically nonconductive member to the substrate between the piezoelectric member and the pad before said depositing; and

covering at least a portion of the electrically nonconductive member with the electrically conductive material during said depositing, the electrically nonconductive member providing support for the electrically conductive material bridging the piezoelectric member and the pad.

34. The method of claim 31, wherein the number of elements is about 64.

35. The method of claim 31, wherein the elements each include a first side opposite a second side, the flex circuit includes a first number of traces separated from a second number of traces by at least one insulating layer, the first number of traces each being electrically coupled to a different one of the elements through the first side by a via through the substrate and the second number of traces each being connected to the second side of each of the elements.

36. The method of claim 35, wherein the second number of traces are electrically connected together to provide an electrical ground.

37. The method of claim 31, wherein the circuit substrate is of a flexible type, and further comprising forming the assembly after said dividing to have an approximately cylindrical shape.

38. The method of claim 37, wherein the substrate includes a first side opposite a second side, said forming positions the elements along the first side interior to the cylindrical shape and

defines an outer surface of the cylindrical shape along the second side, and further comprising inserting a material in the interior of the cylindrical shape.

39. The method of claim 31, further comprising performing one or more of tissue ablation and ultrasound detection with the assembly.

40. The method of claim of claim 31, wherein the circuit substrate is of a flexible type, said coupling the circuit substrate to the cabling includes applying a solder paste, soldering a multiconductor cable to a set of pads, and heating the cable and set of pads with a soldering iron.

41. The method of claim 40, further comprising coupling a connector to the cabling at an end of the cabling opposite the circuit substrate.

42. The method of claim 31, wherein said dividing is performed with a saw.

43. A system, comprising:

an ablation device operable to be percutaneously placed within a patient's body, the ablation device including an array of at least eight ultrasonic tissue ablation elements located at a distal end portion of the device and cabling coupled to the array, the cabling extending to a proximal end portion of the device; and

a control station coupled to the cabling, the station including one or more processors operable to activate different subsets of the elements in a desired sequence while the device is in the patient's body to correspondingly focus ultrasonic energy emanating from the device and to

correspondingly ablate different segments of tissue circumferentially surrounding the device, the subsets each including two or more of the elements.

44. The system of claim 43, wherein the number of elements is at least thirty-two.

45. A system, comprising:

an ablation device operable to be percutaneously placed within a patient's body, the ablation device including an array of at least eight ultrasonic tissue ablation elements located at a distal end portion of the device and cabling coupled to the array, the cabling extending to a proximal end portion of the device and including a number of electrical conductors each electrically insulated from one another, the elements each being electrically connected to a different one of the conductors; and

a control station coupled to the cabling, the station including one or more processors operable to independently activate the elements to selectively change focus of ultrasonic energy emanating from the device to ablate different tissue regions while the device is in the patient's body.